



## Floating Docks Prevent Severe Damage to Boats During Hurricanes

### Full Mitigation Best Practice Story

#### *State-wide, Florida*



**N. Fort Meyers, FL** — Recreational boats moored at traditional docks have a bumpy experience during normal weather conditions, not to mention when a hurricane hits. By design, a traditional wooden or metal dock is stationary while the boat moves back and forth with the water. During severe weather though, the boat can crash into the dock, sustain severe damage, and could even be destroyed. Floating docks may solve this costly problem.

Similar in construction to a raft, floating docks combine lightweight, buoyant materials to create moveable platforms to which boaters can secure their valuable vessels. A floating dock drifts with water currents, but only as allowed by its anchoring system. The waves caused by mooring and launching of boats, for instance, move the dock only slightly—making it very easy to board.

Traditional, fixed docks are much different. They are built of rigid wood or steel and are anchored by beams secured to the floor of the bay or sea. The stationary design makes fixed docks useful for loading or unloading commercial cargo containers.

However, the traditional design makes docks more susceptible to damages during severe weather, like a hurricane. A storm surge may submerge a stationary dock, washing away deck boards and railings. Pieces of the broken dock can turn into underwater or windborne debris. The underwater debris may damage the hulls of moored boats, while windborne debris can strike the deck above. Should a stationary dock collapse, the corresponding damage to secured boats may be considerable and the dock itself can be reduced to wreckage.

The design of floating docks greatly reduces the problems of traditional ones. Floating docks are tethered in place by a post-tension or whaler cable system. The cables attach to pilings below and allow the dock to ride up or down with the water level. Essentially, a series of pontoons are bounded by long wooden or steel slats on either side, and then anchored to pilings.

“The pilings hold the whole thing in place so it is semi-rigid but has elasticity and shares the stress along multiple points,” said Brian Midolo, owner, Marine Contracting Group, Inc. “The components are designed so that, should some part of the dock come adrift, it will float away like a raft rather than having submerged elements that break apart causing damage.”

Another benefit of the floating dock is how the distance between the dock and the boat remains equal, despite the rising and lowering of water caused by tides. This makes them useful to the Navy.

“Floating docks provide an easy step onto and off of the deck for loading and unloading of personnel and surveillance equipment,” said Petty Officer First Class Doug Spear. “You can board from a floating dock, even in a hurry.”

The U.S. Coast Guard in Fort Myers, Fla., uses a floating dock during dangerous boating conditions.

“The Coast Guard finds the floating docks a safer bet than the fixed docks at the beach,” said Dave O’Connor, Harbor Master at Legacy Harbour Marina.

Located 17 miles up the Caloosahatchee River, Legacy Harbour Marina has had floating docks since its construction in 2002. There are 131 slips used by recreational boaters. O’Connor attributes the marina’s popularity to the effectiveness of the floating docks. They are able to withstand tidal surges and also serve as a breakwater for the shoreline.

“Hurricanes Charley and Wilma caused only minimal damages to the floating docks, despite the overall serious damage caused by the hurricanes,” he said.

During those storms, damage to the docks was isolated to cracked wooden slats. That allowed the marina to remain open, with no interruption of service.

Pricing is nearly equivalent between floating and fixed docks.

#### Activity/Project Location

Geographical Area: **State-wide**

FEMA Region: **Region IV**

State: **Florida**

#### Key Activity/Project Information

Sector: **Private**

Hazard Type: **Severe Storm; Flooding; Hurricane/Tropical Storm**

Activity/Project Type: **Mitigation Planning/Disaster Resistant Universities**

Structure Type: **Wood Frame; Steel Frame**

Activity/Project Start Date: **01/2002**

Activity/Project End Date: **Ongoing**

Funding Source: **Local Sources; Private funds**

#### Activity/Project Economic Analysis

Cost: **Amount Not Available**

#### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **No**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **No**

#### Reference URLs

Reference URL 1: **<http://floridadisaster.org>**

Reference URL 2: **<http://www.fema.gov>**

## Main Points

- Recreational boats moored at traditional docks have a bumpy experience during normal weather conditions, not to mention when a hurricane hits.
- During severe weather, the boat can crash into the dock, sustain severe damage, and could even be destroyed. Floating docks may solve this costly problem.
- Pricing is nearly equivalent between floating and fixed docks.



Floating dock in Stuart, Fla., provides safe harbor.



Floating dock allows for easy boarding for recreational boaters.